Desempenho de frangos de corte com adições de extratos vegetais na dieta

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Resumo: O objetivo foi avaliar o desempenho de frangos de corte recebendo extratos vegetais na dieta. 360 frangos de corte foram distribuídos em um delineamento totalmente casualizado, com cinco tratamentos e seis repetições com 12 animais cada. Os tratamentos experimentais foram: controle negativo (sem aditivos), controle positivo (adição de 0.0125% de Enramicina) e quatro dietas com os aditivos extrato de equinácea (0.03 e 0.06%) e extrato de eucalipto (0.1 e 0.2%). O consumo de ração, ganho de peso e conversão alimentar foram semelhantes entre as dietas controle e as dietas com ou sem inclusão de aditivos. A ausência de diferenças entre os tratamentos pode ser explicada pela inexistência de um desafio imunológico às aves. De acordo com os resultados obtidos, a inclusão de 0.03% ou 0.06% de extrato de equinácea e 0.1% ou 0.2% de extrato de eucalipto, não trouxeram benefícios no desempenho dos animais quando comparados a inclusão ou não de antimicrobianos na dieta.

Palavras–chave: conversão alimentar, eucalipto**,** ganho de peso

Performance of broiler chicken with vegetal extract addition in the diet

Abstract: The objective was to evaluate the performance of broiler chicken that received vegetal extracts in the diet. 360 broiler chickens were distributed in a completely randomized design, with five treatments and six repetitions with 12 animals each. The experimental treatments were: negative control (without additives), positive control (addition of 0.0125% of Enramicina) and four diets with additives of echinacea extract (0.03% and 0.06%) and eucalypt extract (0.1 and 0.2%). The feed intake, weight gain and feed conversion had been similar between the control diet and the diets with or without additive inclusion. The absence of differences between the treatments can be explained by the inexistence of an immune challenge in birds. According the results, the inclusion of 0.03% or 0.06% of echinacea extract and 0.1 or 0.2% of eucalypt extract did not bring benefits in the performance of the animals when compared with inclusion or not of antimicrobials in the diet.

Keywords: alimentary conversion, eucalypt**,** weight gain

Introduction

The antimicrobials use in rations aims to control pathogenic agents to the digestive process, promoting improvement in zootechnical indexes, but the possibility of development of bacterial resistance in the animal still limits its use. Currently, there are a plenty of alimentary additives available in the market, one of these it is the essential oils, on the basis of its mechanism of action, can be a strategy of an alimentation without antimicrobials. (Langhout et al., 2005). The objective was to evaluate the effect of two additives of vegetal extract in two levels of the diet on the performance of broiler chicken.

Material and Methods

360 broiler chicken were allotted, in 30 miniboxes of 1 m^2 in a room with control of temperature and humidity per 34 days. In each miniboxe were placed 12 animals that composed an experimental unit. The evaluated periods were: pre-starter (1 - 7 days), starter (7 – 14 days), growth (14 – 28 days) and final (28 – 34 days). Two additives of vegetal extracts were tested, the echinacea extract and the eucalypt extract (oil of eucalypt, oil of mint, L-mentol and thyme) in different level for each period of inclusion in corn and wheat bran based diets, according to recommendations of Rostagno et al. (2011).

The tested treatments were: I – negative control (without the vegetal extract addition), II – positive control (with the addition of 0.0125% growth promoter enramicina), III - inclusion of 0.03% vegetal extract of echinacea, IV - inclusion of 0.06% vegetal extract of echinacea, V - inclusion of 0.1% vegetal extract of eucalypt, VI - inclusion of 0.2 % vegetal extract of eucalypt. The tested treatments were presented in table 1.

Table 1. Description of the treatments applied to the experimental units.

Treatment	Description
I – Negative Control	Withou the vegetal extract inclusion
II – Positive Control	With antimicrobials (0.0125% of enramicina)
III – Vegetal Extract of Echinacea[1]	Inclusion of 0.03%
IV – Vegetal Extract of Echinacea[1]	Inclusion of 0.06%
V – Vegetal Extract of Eucalypt[2]	Inclusion of 0.1 %
VI – Vegetal Extract of Eucalypt[2]	Inclusion of 0.2 %

[1]Echinacea extract; [2]Eucalypt extract (oil of eucalypt, oil of mint, L-mentol e thyme)
Metabolizable energy(kcal/kg): pre-starter: 2971; starter: 3018; growth: 3118; final: 3177;
Proteína bruta (%): pré-starter: 22.8; starter: 21.0; growth: 19.4; final: 17.5;

Feed conversion was estimated using the feed intake, calculated as the difference between the amount of feed offered and these leftovers in feeders. In the first experimental day and after each week, the birds were weighed, individually, to evaluate the weight gain using the mean of the experimental units and uniformity variation coefficient. A completely randomized experimental design was used with six treatments and five repetitions. The data was submitted to the analysis of variance for procedure GLM and the means were compared by test SNK 5% of probability.

Results and Discussion

In the performance results (table 2) significant differences for the means of the treatments were not observed (P>0.05).

Table 2. Performance of broiler chicken (1 - 34 days of age) receiving two different vegetal extracts in different levels of inclusion.

Diets	[1]I	II	III	IV	V	VI	P	CV (%)
1 to 7 days								
Feed intake (g)	151.2	143.5	148.0	149.0	151.2	152.1	0.7254	6.34
Weight gain (g)	118.8	111.9	119.0	115.7	121.1	118.6	0.5206	6.67
Feed conversion (g)	1.274	1.288	1.246	1.288	1.250	1.283	0.8628	5.43
7 to 14 days								
Feed intake (g)	375.0	369.2	375.1	375.1	372.5	379.4	0.9399	4.12
Weight gain (g)	264.4	261.8	268.7	268.5	265.6	270.4	0.9223	5.14
Feed conversion (g)	1.420	1.410	1.397	1.397	1.405	1.404	0.9419	2.83
14 to 21 days								
Feed intake (g)	678.9	664.4	649.8	663.3	649.6	636.0	0.2451	4.24
Weight gain (g)	479.7	463.8	453.6	445.0	445.4	428.7	0.1152	6.13
Feed conversion (g)	1.415	1.433	1.433	1.491	1.462	1.497	0.0252	2.71
21 to 28 days								
Feed intake (g)	859.2	859.6	802.5	845.8	826.4	820.5	0.4924	6.46
Weight gain (g)	627.5	640.2	623.8	614.5	615.8	633.1	0.8064	5.32
Feed conversion (g)	1.371	1.342	1.289	1.377	1.343	1.295	0.2562	5.22
28 to 34 days								
Feed intake (g)	1009.6	960.5	1008.5	972.9	1000.0	997.8	0.6822	5.76
Weight gain (g)	581.8	517.2	573.2	553.5	547.0	553.9	0.1511	6.78
Feed conversion (g)	1.735	1.858	1.761	1.760	1.832	1.807	0.1445	4.41

[1]I – negative control (without additon of vegetal extract), II – positive control (with addition of 0.0125% of growth promoter enramicina), III – inclusion of 0.03% vegetal extract of echinacea, IV - inclusion of 0.06% vegetal extract of echinacea,
V – inclusion of 0.1% vegetal extract of eucalypt, VI - inclusion of 0.2 % vegetal extract of eucalypt.

Feed intake,weight gain and feed conversion were similar between the control diet and the diets with or without additive inclusion of vegetals extracts.. The absence of differences between the treatments can be explained by the inexistence of an immune challenge in poultry. The results are in accordance with Toledo et al. (2007) that did not find significant differences testing the inclusion of antimicrobials and additive of vegetal extracts on diet of broiler chickens when compared with diet without these. Rizzo et al. (2010) also did not find differences in the final

weight, in the weight gain, in the feed intake and feed conversion in the period of 42 days evaluating diets with the additive inclusion of vegetal extracts compared diets with antimicrobials or without. Although difference between the diets did not occur, it can be observed that the variation between the analyzed answers was low, indicating that had uniformity between the applied treatments, and that the additives of vegetal extracts did not prejudice the performance of the birds (Table 3).

Table 3. Weekly uniformity of broilers chickens receiving vegetal extracts in the diet (coefficient from variation of weight of the animals %).

Day	[1]I	II	III	IV	V	VI	P
0	8.25	8.21	6.90	8.11	6.62	7.88	0.4486
7	9.05	9.72	8.88	8.26	9.77	8.64	0.9196
14	9.66	9.33	8.13	7.52	9.27	9.06	0.2561
21	9.11	8.78	8.06	6.22	9.34	9.28	0.2263
28	8.69	9.09	8.28	6.31	9.35	8.10	0.1181
34	8.73	8.77	8.09	7.16	8.58	8.05	0.6038

[1]I – negative control (without additon of vegetal extract), II – positive control (with addition of 0.0125% of growth promoter enramicina), III – inclusion of 0.03% vegetal extract of echinacea, IV - inclusion of 0.06% vegetal extract of echinacea,
V – inclusion of 0.1% vegetal extract of eucalypt, VI - inclusion of 0.2 % vegetal extract of eucalypt.

Conclusions

The addition of echinacea extract or eucalypt extract in the diet of broilers chicken does not affect the performance of the poultry.

The vegetal extracts in the diet of broilers chicken have similar performance when compared with diets containing antimicrobials in inexistence of an immune challenge.

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